

REMARKS

Claims 1 and 7-10 were rejected under 35 U.S.C. 102(b) as allegedly being anticipated by Nakamura et al. (US 2004/0198916).

This rejection is respectfully traversed.

The Examiner states that Synthesis 1 disclosed in lines 1-8 of paragraph [0067] of Nakamura would inherently disclose 0.3wt% of water as the immediate product of potassium hydroxide and methacrylic acid being brought in contact is water and potassium methacrylate. Therefore, there is 1 mole equivalent of water being formed in addition to the water already present in potassium hydroxide.

On closer evaluation of Nakamura, Applicants agree with the Examiner's position. However, Nakamura fails to disclose either explicitly or inherently that "the reaction is carried out in presence of 0.8wt% or more water in said reaction system" as recited in amended claim 1. The reasons are the following.

The net amount of water in the reaction of Nakamura's Synthesis 1 is from 0.489-0.532 wt% as shown by calculations below. So, Nakamura does not teach the presence of 0.8wt% or more of water in the reaction system. In Example 1-3 of the present application, the reaction is carried out in presence of 0.8wt% or more water, resulting in a purity after column purification of more than 91%. This level of purity is excellent considering with the purity of other examples are less than 90%.

Calculations showing net amount of water in the reaction of Nakamura's Synthesis

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The amount of water present in the potassium hydroxide of Synthesis 1 of Nakamura has not been specified in Nakamura. However, persons of ordinary skill in this art would recognize that it would be reasonable to assume that the potassium hydroxide of Synthesis 1 would contain about 10 to 15wt% water as explained by the Examiner on page 4, lines 1-2, of the Office Action that "ACS reagent grade potassium hydroxide contains 10-15% water[,] referring to Sigma-Aldrich specification sheet for potassium hydroxide, ACS reagent grade.

The total amount of the reaction mixture in Synthesis 1 of Nakamura was 154.89g (101g of J1 + 51.7g of methacrylic acid + 0.24g of hydroquinone + 1.95g of water-containing potassium hydroxide).

Assume that the 1.95g of potassium hydroxide in Synthesis 1 of Nakamura contained 10wt% water. In this case, the amount of water in the 1.95g of water-containing potassium hydroxide of Synthesis 1 would be $1.95 \times 0.1 = 0.2$ g, the amount potassium hydroxide in the 1.95g of water-containing potassium hydroxide of Synthesis 1 would be $1.95 \times 0.9 = 1.755$ g, and the amount of water produced by the reaction of potassium hydroxide and methacrylic acid would be $1.95 \times 0.9 / 56.11 \times 18 = 0.563$ g. So, the total amount of water in the reaction mixture of Synthesis 1 of Nakamura would be 0.7589g. Thus, the amount of water in the reaction mixture on a percent weight basis would be $(0.758 / 154.89) \times 100 = 0.489\text{wt\%}$.

Alternatively, assume that the potassium hydroxide in Synthesis 1 of Nakamura contained 15wt% water. In this case, the amount of water in the 1.95g of water-containing potassium hydroxide of Synthesis 1 would be $1.95 \times 0.15 = 0.2925$ g, the amount potassium hydroxide in the 1.95g of water-containing potassium hydroxide of Synthesis 1 would be $1.95 \times 0.85 = 1.6575$ g, and the amount of water produced by reaction potassium hydroxide and methacrylic acid would be $1.95 \times 0.85 / 56.11 \times 18 = 0.532$ g. So, the total amount of water in the reaction mixture of Synthesis 1 of Nakamura would be 0.824g. Thus, the amount of water on a percent weight basis in the reaction mixture would be $0.824 / 154.89 \times 100 = 0.532\text{wt\%}$.

Claims 1-2 and 7-10 were rejected under 35 U.S.C. 103(a) as allegedly being unpatentable over Nakamura et al. (US 2004/0198916) in view of Inoue et al. (US 5,891,356).

This rejection is respectfully traversed.

Neither Nakamura nor Inoue discloses “the reaction is carried out in presence of 0.8wt% or more water in said reaction system” as recited in amended claim 1. Thus, the obviousness rejection should be withdrawn.

Please charge any fees associated with the submission of this paper to Deposit Account Number 033975. The Commissioner for Patents is also authorized to credit any over payments to the above-referenced Deposit Account.

Respectfully submitted,

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